

In the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently Amended) A method of cleaning a process chamber having interior surfaces, comprising the steps of:

providing a repellent coating layer of first polarity on said interior surfaces of said process chamber;

placing a substrate in said process chamber;

depositing a material film on said substrate and on said repellent coating layer on said interior surfaces;

removing said substrate with said material film from said process chamber; and

cleaning said material film on said interior surfaces of said process chamber by introducing a cleaning gas of second polarity opposite said first polarity into said process chamber;

wherein, after the step of cleaning, at least part of said repellent coating layer is present on said interior surfaces.

2. (Original) The method of claim 1 wherein said first polarity is a hydrophobic polarity and said second polarity is a hydrophilic polarity.

3. (Original) The method of claim 1 wherein said repellent coating layer has a thickness of at least about 2 μm .

4. (Original) The method of claim 3 wherein said first polarity is a hydrophobic polarity and said second polarity is a hydrophilic polarity.

5. (Original) The method of claim 1 wherein said repellent coating layer is silicon.

6. (Original) The method of claim 5 wherein said repellent coating layer has a thickness of at least about 2 μm .

7. (Original) The method of claim 1 wherein said repellent coating layer is silicon carbide.

8. (Original) The method of claim 7 wherein said repellent coating layer has a thickness of at least about 2 μm .

9. (Currently Amended) A method of cleaning a process chamber having interior surfaces, comprising the steps of:

providing a repellent coating layer of first polarity having a thickness of from about 2 μm to about 10 μm on said interior surfaces of said process chamber;

placing a substrate in said process chamber;

depositing a material film on said substrate and on said repellent coating layer on said interior surfaces;

removing said substrate with said material film from said process chamber; and

cleaning said material film on said interior surfaces of said process chamber by introducing a cleaning gas of second polarity opposite said first polarity into said process chamber;

wherein, after the step of cleaning, at least part of said repellent coating layer is present on said interior surfaces.

10. (Original) The method of claim 9 wherein said first polarity is a hydrophobic polarity and said second polarity is a hydrophilic polarity.

11. (Original) The method of claim 9 wherein said providing a repellent coating layer on said interior surfaces of said process chamber comprises the steps of setting said process chamber at a temperature of from about 500 degrees C. to about 700 degrees C. and a pressure of from about 10 Torr to about 760 Torr and introducing a layer-forming gas into said process chamber.

12. (Original) The method of claim 9 wherein said repellent-coating layer is silicon.

13. (Original) The method of claim 12 wherein said providing a repellent coating layer on said interior surfaces of said process chamber comprises the steps of setting said process chamber at a temperature of from about 500 degrees C. to about 700 degrees C. and a pressure of from about 10 Torr to about 760 Torr and introducing silane gas into said process chamber.

14. (Original) The method of claim 9 wherein said repellent-coating layer is silicon carbide.

15. (Original) The method of claim 14 wherein said providing a repellent coating layer on said interior surfaces of said process chamber comprises the steps of setting said process chamber at a temperature of from about 500 degrees C. to about 700 degrees C. and a pressure of from about 10 Torr to about 760 Torr and introducing tri-methyl silane gas into said process chamber.

16. (Currently Amended) A method of cleaning a process chamber having interior surfaces, comprising the steps of:

providing a repellent coating layer of first polarity having a thickness of at least about 5 μm on said interior surfaces of said process chamber;

placing a substrate in said process chamber;

depositing a material film on said substrate and on said repellent coating layer on said interior surfaces;

removing said substrate with said material film from said process chamber; and

cleaning said material film on said interior surfaces of said process chamber by introducing a cleaning gas of second polarity opposite said first polarity into said process chamber;

wherein, after the step of cleaning, at least part of said repellent coating layer is present on said interior surfaces.

17. (Original) The method of claim 16 wherein said first polarity is a hydrophobic polarity and said second polarity is a hydrophilic polarity.

18. (Original) The method of claim 16 wherein said providing a repellent coating layer on said interior surfaces of said process chamber comprises the steps of setting said process chamber at a temperature of from about 500 degrees C. to about 700 degrees C. and a pressure of from about 10 Torr to about 760 Torr and introducing a layer-forming gas into said process chamber.

19. (Original) The method of claim 16 wherein said repellent-coating layer is silicon.

20. (Original) The method of claim 16 wherein said repellent-coating layer is silicon carbide.